

CLAIMS

I claim:

1. A spindle assembly for a lawnmower having a deck and a blade mounted for rotation with respect to the deck, the spindle assembly comprising:
 - 5 a housing defining an opening and being connectable to the deck;
 - a spindle at least partially disposed within the housing and having an end extending through the opening and beyond the housing, and being mounted for rotation with respect to the housing about a rotational axis;
 - at least one bearing disposed within the housing and connecting the spindle
 - 10 to the housing for rotational movement; and
 - a seal disposed within the housing between the opening and the at least one bearing to resist materials from passing from the opening to the at least one bearing.
2. The spindle assembly of Claim 1, wherein the spindle includes a flange
- 15 extending radially outwardly from the end of the spindle within the opening and being spaced from the housing, the blade being connectable to the flange.
3. The spindle assembly of Claim 2, wherein the seal is disposed between the flange and the at least one bearing
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4. The spindle assembly of Claim 1, wherein the seal is fixed with respect to the housing and the spindle is rotatable with respect to the seal.
5. The spindle assembly of Claim 4, wherein the seal is connected to the
- 25 housing with an interference fit.
6. The spindle assembly of Claim 1, wherein the seal is a generally ring shaped member extending around the spindle and comprises a body having an outer ring portion contacting the housing and an inner ring portion and a lip connected to the inner
- 30 ring portion and contacting the spindle.
7. The spindle assembly of Claim 6, wherein the body is made from a rigid material and the lip is made from a flexible material.

8. The spindle assembly of Claim 7, wherein the body is entirely surrounded by a flexible rubber material.

5 9. The spindle assembly of Claim 6, wherein the lip is bonded to the body.

10. The spindle assembly of Claim 6, wherein the lip includes two ring shaped portions spaced apart from one another and contacting the spindle.

11. A spindle assembly for a lawnmower having a deck and a blade mounted for rotation with respect to the deck, the spindle assembly comprising:

a housing defining an opening and being connectable to the deck;

5 a spindle at least partially disposed within the housing and being mounted for rotation with respect to the housing about a rotational axis, and having a flange extending radially outwardly from the spindle within the opening and being spaced from the housing, the blade being connectable to the flange;

at least one bearing disposed within the housing and connecting the spindle to the housing for rotational movement; and

10 a seal disposed within the housing between the flange and the at least one bearing to resist materials from passing from the opening to the at least one bearing, the seal being a generally ring shaped member extending around the spindle comprising a body made from a rigid material and having an outer ring portion connected to the housing and an inner ring portion and a lip made from a flexible material and connected to the
15 inner ring portion and contacting the spindle, the seal being fixed with respect to the housing and the spindle being rotatable with respect to the seal.

12. The spindle assembly of Claim 11, wherein the seal is connected to the housing with an interference fit.

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13. The spindle assembly of Claim 11, wherein the body is entirely surrounded by a flexible rubber material.

14. The spindle assembly of Claim 11, wherein the lip is bonded to the body.

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15. The spindle assembly of Claim 11, wherein the lip includes two ring shaped portions spaced apart from one another and contacting the spindle.

16. A spindle assembly for a lawnmower having a deck and a blade mounted for rotation with respect to the deck, the spindle assembly comprising:

a housing defining an opening and being connectable to the deck;

5 a spindle at least partially disposed within the housing and having an end extending through the opening and beyond the housing, and being mounted for rotation with respect to the housing about a rotational axis;

at least one bearing disposed within the housing and connecting the spindle to the housing for rotational movement; and

10 a sealing means disposed between the opening and the at least one bearing for resisting materials from passing from the opening to the at least one bearing.

17. The spindle assembly of Claim 16, wherein the sealing means includes a rigid support means connected to the housing and a flexible contacting means contacting the spindle.

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18. The spindle assembly of Claim 17, wherein the rigid support portion is fixed with respect to the housing and the spindle is rotatable with respect to the flexible contacting means.

20 19. The spindle assembly of Claim 17, wherein the flexible contacting means includes two ring shaped portions spaced apart from one another and contacting the spindle.

25 20. The spindle assembly of Claim 17, wherein the rigid support means is connected to the housing with an interference fit.